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ABSTRACT

This paper reports on the activities of the National Center for Teacher Education, which is examining what teachers are taught and what they learn in different kinds of teacher education programs. The Center's work combines case studies of different teacher education programs with longitudinal studies of participants' learning. Putting together data about the purposes, character, and quality of programs with data about how teachers and prospective teachers' ideas and practices change over time enables the Center to address the central research question: What do teacher education programs contribute to teachers' learning? This paper describes how the Center is exploring that question and what may be learned from the investigation. A discussion is presented on how the key terms in the research question are conceptualized and a description is given of data collection strategies. Some of the contributions and limitations of the Center's research are discussed. (JD)

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Issue Paper 88-7

TEACHER EDUCATION AND LEARNING TO TEACH: A RESEARCH AGENDA

National Center for Research
on Teacher Education

NCRTE

**National
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TEACHER EDUCATION AND LEARNING TO TEACH: A RESEARCH AGENDA

National Center for Research
on Teacher Education

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National Center for Research on Teacher Education

The National Center for Research on Teacher Education (NCRTE) was founded at Michigan State University in 1985 by the Office of Educational Research and Improvement, U.S. Department of Education.

The NCRTE is committed to improving teacher education through research on its purposes, its character and quality, and its role in teacher learning. NCRTE defines teacher education broadly and includes in its portfolio such diverse approaches as preservice, inservice, and induction programs and alternate routes to teaching.

To further its mission, the NCRTE publishes research reports, issue papers, technical series, conference proceedings, and a newsletter on contemporary issues in teacher education. For more information about the NCRTE or to be placed on its mailing list, please write to the Editor, National Center for Research on Teacher Education, 516 Erickson Hall, Michigan State University, East Lansing, Michigan 48824-1034.

Director:	Mary M. Kennedy
Associate Directors:	Robert E. Floden G. Williamson McDiarmid
Editor:	Sandra Gross

Many papers published by the NCRTE are based on the Teacher Education and Learning to Teach Study, a single multisite longitudinal study. The researchers who have contributed to this study are listed below:

Marianne Amarel
Deborah Loewenberg Ball
Joyce Cain
Sandra Callis
Barbara Camilleri
Anne Chang
David K. Cohen
Ada Beth Cutler
Sharon Feiman-Nemser
Mary L. Gomez
Samgeun K. Kwon
Magdalene Lampert
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Michelle Parker
Richard Prawat
Pamela Schram
Trish Stoddart
M. Teresa Tatto
Suzanne Wilson
Lauren Young
Kenneth M. Zeichner
Karen K. Zumwalt

Abstract

The work of the National Center for Teacher Education is focused on the question: What do teacher education programs contribute to the learning of teachers? This paper provides conceptual definition for key research terms, describes the data collection strategies being used by Center staff, and discusses the contributions and limitations of the Center's research endeavors.

TEACHER EDUCATION AND LEARNING TO TEACH: A RESEARCH AGENDA[1]

National Center for Research on Teacher Education

Teacher education is a frequent target of criticism both inside and outside the field and many people have strong views about what should be done to improve it. These range from proposals to eliminate teacher education in favor of some alternate route to teaching (Adelman, 1986) to recommendations for a six-year combined B.A.-Ed.D. degree program (Cremin, 1977; Kerr, 1983). In between are various ideas about how the structure, content, and context of teacher education should be changed.

Despite the plethora of suggestions, teacher education is still an "unstudied problem" (Fuller and Bown, 1975; Lanier, 1986; Sarason, Davidson, and Blatt, 1986). We know relatively little about what goes on in different teacher education programs and how teachers are affected. The fact that friends and foes of teacher education hold different conceptions of what teaching is like, what teachers need to know, and how they can be helped to learn that makes it difficult to compare and evaluate the various proposals for reform.

The National Center for Teacher Education is trying to inform current debate and curriculum reform by examining what teachers are taught and what they learn in different kinds of teacher education programs. The Center's work combines case studies of different teacher education programs with longitudinal studies of participants' learning. Putting together data about the purposes, character, and quality of programs with data about how teachers and prospective teachers' ideas and practices change over time will enable us

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[1]This will appear as an article in the Journal of Teacher Education.

to address our central research question: What do teacher education programs contribute to teachers' learning?

This paper describes how the Center is exploring that question and what we hope to learn from our investigation. First, we discuss how we have conceptualized the key terms in the research question. Second, we describe our data collection strategies. Third, we discuss some of the contributions and limitations of the Center's research.

Defining Terms

Most people equate teacher education with teacher preparation, but this does not take into account the range of formal opportunities for teacher learning. Besides preservice programs, there are induction programs for beginning teachers and inservice programs for experienced teachers. By taking a broad view of teacher education, we want to focus attention on teacher learning at different points in teachers' careers and stimulate thinking about what a curriculum for teachers at different stages of development should be like. Are there some things that teachers should learn before they begin teaching and other things that are more appropriately addressed after teachers have some experience?

Program Dimensions

By program, we mean a deliberate educational intervention designed to foster learning. We are interested in those dimensions of programs that are most likely to contribute to changes in teachers' ideas and practices. We distinguish such dimensions on three levels: the overall program, the

individual component, and the specific learning opportunities within each given component. (See Table 1 below.)

Table 1

Studying Learning Opportunities in Teacher Education Programs

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Program-level Dimensions

- o the organized set of components and their rationale
- o perceived contextual influences on program
- o standards for entry and exit
- o ethos (implicit messages)
- o teacher educators as teachers and models

Component-level Dimensions

- o content and rationale
- o standards: content and rigor of performance requirements
- o nature of learning tasks
- o whether and how content relates to teaching practice

Learning Opportunity Dimensions

- o content and rationale
- o learning tasks
- o standards-in-use
- o processes to facilitate learning
- o messages about teaching, learning, subject matter

Programs, whether preservice, induction or inservice, are generally constructed out of familiar units such as courses, workshops, or field experiences arranged in a particular sequence. The rationale for components and their sequence often reflects particular ideas about what teachers and teacher candidates need to know and how they can be helped to learn that. For example, an alternate route program that provides on-the-job training to liberal arts graduates reflects a different view of teacher knowledge and learning to teach than an undergraduate preservice program that consists of foundations and methods courses followed by student teaching. Similarly, an inservice program that trains teachers in "effective" teaching behaviors derived from research on teaching rests on a different notion of what experienced teachers need to know and how they can be helped to improve than a study group where experienced teachers work on figuring out solutions to mathematical problems.

Teacher education programs are not free-floating entities; they exist in contexts that influence their character and quality. Programs are generally housed in universities or school districts which impose constraints and provide resources and opportunities (e.g., Clark, 1986). State-level policies regarding certification or teacher assessment represent another kind of context that influences program content. In states where beginning teachers must pass a performance assessment, for example, preservice teacher educators may feel obliged to prepare teachers for this hurdle.

Standards for entry into the program and for exit from the program also tell us what knowledge, skills, and dispositions are considered important. To get into a program, teachers may be required to write essays, be interviewed, take tests. What is the content of these exercises? How is performance

evaluated? What are the consequences of good or poor performance? Answers to such questions can shed light on the assumptions about prerequisite knowledge, skills, and dispositions.

Just as teachers can make a difference in children's learning, so teacher educators presumably have an impact on their "students." Program faculty and staff serve as purveyors of content and facilitators of learning. What they know and value and how they share this with teacher candidates and teachers contributes to the program's impact on teachers' learning.

Ethos refers to the culture of the program--the norms and values that shape how people interact, the underlying messages about knowledge, teaching, and learning that are communicated both directly and indirectly. For example, teacher educators may communicate the view that teachers do (or do not) need a deep understanding of subject matter or that, in teaching, there is (or is not) a "best" way to do things.

While these program-level features undoubtably contribute to teachers' learning, the major influence probably stems from the specific components and their learning opportunities. Many of the component-level dimensions parallel program-level features.

Content refers to the knowledge and understandings, skills and dispositions, attitudes and beliefs that teacher educators consciously seek to alter in their teachers or teacher candidates. Content might include knowledge of and about particular subjects, pedagogical knowledge and skills, knowledge about children and learning, knowledge about the social and political role of education, skill in organizing and managing classrooms, attitudes toward diverse learners, dispositions to ask particular kinds of questions, and so forth. Knowing why teacher educators have selected and sequenced particular

kinds of content will help us understand their views about good teaching and what it takes, as well as their assumptions about the capabilities of teachers and the kinds of schools where they work or are likely to work.

Standards refer to the criteria for judging teachers' performance within the component. Standards may be explicit (e.g., What does it take to write a satisfactory paper or teach a good lesson?) or implicit (e.g., What counts as a good answer or question in class discussion or conference?).

Closely related to standards are the processes used to promote learning. How is knowledge defined in the component and how does the teacher educator help teacher candidates and teachers acquire and develop it? Is knowledge treated as a fixed body of ideas and practices ready to be transmitted or as something uncertain and changing?

Components also present teacher-learners with "academic tasks" (Doyle, 1986). These include specific assignments as well as the teaching/learning activities that occur during class sessions or conferences. Do teachers mostly sit and listen to lectures? Do they examine ideas and examples? Do they write reflective papers analyzing their teaching? Do they solve the same kinds of math problems which they, in turn, will give to their students? Do they ask for and receive advice? Knowing what teachers do *as learners* in the various components of a program can offer a picture of what teachers have an opportunity to learn.

Another characteristic of program components and the learning opportunities within them is the way teacher educators portray the relationship between their content and teaching practice and the messages they communicate about teaching, learners and learning, and subject matter. For example, is the content of a component supposed to dictate or inform practice? Does the

teacher educator seem to view learning as the construction of meaning or the assimilation of information?

These characteristics of programs, their components, and their associated learning opportunities combine to create the purposes, character, and quality of a teacher education program. Together they help explain the impact of programs on teacher learning.

Other Influences on Teacher Learning

In studying the role of teacher education in learning to teach, it is difficult to sort out the relative contribution of programs compared with other influences. We know, for example, that much teacher learning comes about without any deliberate teacher education and we assume that teacher knowledge is also shaped by teachers' college and even high school education.

One of the most powerful informal influences on teacher learning is the personal experience of schooling (Lortie, 1975). Before teacher education students ever take their first education course, they have spent over 12 years watching teachers go about their work. From this "apprenticeship of observation," they have developed many ideas about what classrooms are like and what teachers should do. And these ideas often shape their own behavior in the classroom.

Similarly the experience of teaching itself is a powerful influence on teachers' learning (e.g., Waller, 1932; Zeichner, 1980). If you ask teachers how they learned to teach, they often say they learned through personal trial and error in the classroom and through interactions with students and colleagues, administrators, and parents.

Besides these informal sources of learning, there are formal influences on teachers such as liberal arts education. Many current proposals for reform call for a strengthening of teachers' academic preparation (e.g., Holmes Group, 1986). Some see this as a means of ensuring that teachers will be better educated; others expect courses in the arts and sciences to provide teachers with a better grounding in their teaching subjects. In both cases, the liberal arts are supposed to provide teachers with some of what they need to know to teach. What teachers actually learn from courses in the arts and sciences and how that relates to their preparation for teaching is an open question.

Teacher Learning

The final term, teacher learning, focuses attention on the sorts of changes in knowledge, skills, and dispositions that may occur through teacher education (see Ball and McDiarmid, 1987). To set some boundaries for our work, we have chosen to study teacher learning in relation to two specific subject areas--mathematics and writing. Not only do these subjects offer an interesting contrast, they are taught from kindergarten to high school and are subjects that pupils often have trouble learning. Since current school practices in math and writing frequently differ from those recommended by subject matter experts, these may also be areas where teacher educators try to make a difference.

We recognize that different, even competing, visions of good mathematics teaching and good writing instruction exist. For example, some people believe that teaching writing well means focusing on structure and mechanics while others emphasize the processes of composition. Some people see the teaching

and learning of mathematics in terms of conceptual understanding and small group problem solving while others stress direct instruction in mathematical procedures and computational skills. Each approach rests on a view of teaching, learning, and subject matter and requires particular knowledge, skills, and dispositions on the teacher's part.

These three categories--knowledge, skills, and dispositions--represent our formulation of the constituents of teaching and the dimensions of teacher learning. While it may be useful for analytic purposes to treat them separately, in teaching they intersect. For example, asking good questions and giving good explanations requires both knowledge and skills. Deciding when to ask particular types of questions and when to offer an explanation depends on teachers' commitments and orientations. All these ingredients are reflected in teachers' dispositions or tendencies to respond in particular ways under certain conditions.

While teaching is of a piece, learning to teach occurs unevenly over time. Prospective teachers, for example, come to higher education with ideas about what teachers do. While there, they acquire knowledge and skills in their subject matter areas. Formal study also shapes their ideas about teaching as well as their commitments and orientations. When they begin to teach, they continue to learn--about teaching, pupils, and subject matter. Our interest in teacher learning requires that we pay attention to changes that occur separately in teachers' knowledge, skills, and dispositions as well as changes in how they bring these ingredients together in their teaching.

To specify aspects of teacher knowledge that may be influenced by teacher education, we applied our focus on learning to teach mathematics and writing to the following domains:

- o subject matter and curriculum
- o context
- o learners
- o teaching and learning
- o learning to teach

In thinking about subject matter, for example, we recognized the need to know what teachers and prospective teachers understand about math and writing and how they represent their understandings to themselves and to others. Within any perspective on good teaching, teachers draw on their knowledge of these subjects. We also knew that we should pay attention to what teachers know about contextual factors, including the community, the policies of the school district, the classroom setting, the cultural background of the students, and the time of day or year.

In thinking about what teachers need to know about learners, we focused on teachers' knowledge of pupils of different ages, developmental levels, and backgrounds, how they attend to the diversity of learners in the classroom, as well as their skill in finding out about their pupils.

In the area of teaching and learning, we are interested in teachers' repertoire of strategies for helping students learn math and writing and in their goals for instruction in these subjects. We are also considering teachers' ideas about what it means to "learn" something, how learning occurs, and what their responsibilities are as teachers.

Finally, we wanted to tap teachers' ideas about what they need to learn and how they believe they can learn that. With this explanation of our focal dimensions, we turn to a discussion of how we are investigating changes in teachers' knowledge, skills, and dispositions.

Research Design and Strategies

The Center's work consists of case studies of teacher education programs combined with longitudinal studies of teachers' learning. This two-part design allows us to describe the purpose and character of programs, determine whether and how teachers' ideas and practices change as they participate in programs and move into teaching, and explore the relationship between opportunities to learn in teacher education programs and teachers' learning.

Research Sites

A central element in the research design is the inclusion of a wide variety of approaches and alternatives to teacher education.[1] We include programs for teachers at different stages--preservice, induction and inservice. We also include programs that differ in the relative emphasis they place on liberal arts, formal study of pedagogy, and guided practice and in their treatment of academic subject matter and pedagogy.

In choosing our 11 sites, we sought programs that represented important ideas in contemporary teacher education and major types of learning opportunities currently provided for teachers. Our preservice category includes institutions with varying missions and clientele (e.g., a historically black institution with open admissions and a small, selective liberal arts college) as well as undergraduate, five-year and fifth-year programs. The category of

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[1]In Fall 1986 the Center conducted exploratory site visits to 20 preservice, induction, inservice, and alternate route programs around the country. To identify sites, we sought nominations and talked with people familiar with each program. During the two-three day visit, a Center researcher interviewed key faculty, staff, and administrators. We used the site visits to help us select a smaller sample of sites to study intensively over a three-year period.

programs for beginning teachers includes an induction program for people who have completed a preservice program and two alternative route programs for liberal arts graduates. The inservice category includes two nationally prominent programs to help teachers learn innovative teaching practice. One focuses on the teaching of mathematics; the other, on the teaching of writing. The participating sites/institutions are listed below:

Preservice

Dartmouth College
Teacher Certification Program
Hanover, NM

Illinois State University
Elementary Education and Secondary Math and English
Normal, IL

Michigan State University
Academic Learning Program
East Lansing, MI

Norfolk State University
Early Childhood and Elementary Education
Norfolk, VA

Trenton State College
Elementary Education and Secondary Math and English
Trenton, NJ

University of Florida
Elementary PROTEACH and Secondary English PROTEACH
Gainesville, FL

First year

Albuquerque Public Schools/University of New Mexico
Graduate Intern Program
Albuquerque, NM

Los Angeles Unified School District
Teacher Trainee Program
Los Angeles, CA

New Jersey Provisional Teacher Program

Inservice

Columbia University
Teachers College Writing Project
New York, NY

Mount Holyoke College
SummerMath for Teachers Program
South Hadley, MA

Program Studies

In studying these programs, we are relying on various data sources and instruments. Program documents such as course syllabi and program descriptions will inform us about program goals and the content and organization of specific components. Periodic interviews with program directors will inform us about the purposes and character of programs. A questionnaire for teacher educators will augment what we learn from the director about the program overall. It will also serve as a major source of data about the faculty and staff--their knowledge, attitudes, and beliefs about the teaching of academic subjects to diverse learners. Interviews with teacher educators will give us a more in-depth understanding of the learning opportunities available in specific program components. Observations of selected components (e.g., courses, workshops, classroom visitations, conferences) will provide examples of learning opportunities and help us clarify dimensions of academic and professional quality.

While the specific components that we study will vary from site to site, we have identified some common components within and across program categories. For example, in our preservice sites, we expect to study a course on learning or child development, a course on methods of teaching mathematics, a course that deals with methods of teaching writing and student teaching. We also want to contrast teacher education courses with arts and science courses. Thus we will select an upper-level mathematics course and an upper-level writing course not specifically for teachers as well as a humanities or science course required of all students.

Data about programs will enable us to characterize opportunities in different teacher education programs. We will use these data in developing

case studies of individual programs and in comparing programs along various dimensions.

Longitudinal Design

The second part of our research design consists of longitudinal studies of teacher learning. Within each participating site, we are following a sample of teachers or teacher candidates over time, tracking changes in their knowledge, skills, and dispositions as they move through teacher education and into independent teaching.

Undergraduates will be followed through the last two years of undergraduate study and through their first year of teaching. Students in fifth-year programs will be followed through the last year or two of their program and into their first year of teaching. Those entering teaching through alternative routes will be followed during whatever instruction or supervision they receive prior to teaching, through supervised practice and into their first year of independent practice. First-year teachers in induction programs will be followed through that experience and through their first year of unsupervised teaching and inservice teachers, to the extent possible, will be picked up some time prior to their participation in the inservice program, followed through their inservice experience and for a year thereafter.

Participants will be asked on repeated occasions to respond to a questionnaire, to be interviewed, and to permit us to observe them in their classrooms. The questionnaire taps respondents' knowledge, beliefs, and attitudes about the teaching of mathematics and writing to diverse learners. For example, to get at respondents' ideas about learners, we ask them to evaluate a number of mathematics and writing tasks and to indicate the tasks

they believe are beyond the grasp of most six-to-eight year olds. To elicit knowledge of mathematics and writing on which they might draw, we ask subject matter questions embedded in teaching scenarios. One such scenario asks respondents to evaluate the reasonableness of an unusual student response in mathematics.

The interview is designed to explore participants' views about teaching and about helping pupils learn mathematics and writing and to learn what factors they consider when performing teaching tasks. We have developed the interview around such tasks of teaching as appraising students' written work, planning an activity or lesson, and responding to pupils' questions.

Our observation instruments include an observation guide as well as pre- and post-observation interviews to set what we observe in the context of the teacher's overall goals and practice.

We are giving the questionnaire to a broad sample that includes teacher education students (elementary, secondary English, secondary math), liberal arts students (e.g., math and English majors), and beginning and experienced teachers in the various programs. A smaller sample of participants will be interviewed and observed at each site.

The wide variety of approaches to teacher education combined with the longitudinal design will enable us to inform important and fundamental questions in the field. In the next section, we illustrate how the Center's research can address issues of importance to both policymakers and practitioners.

Contributions and Limitations of the Research

The wide variety of approaches to teacher education included in the Center's study creates a remarkable set of opportunities to inform basic questions in the field. For example, our design permits us to test the claim that teacher education does not substantially contribute to teachers' knowledge because we can compare what candidates learn when enrolled in teacher education programs with what other students learn when enrolled in liberal arts programs. The design also permits us to contrast elementary teacher candidates with secondary teacher candidates, thereby testing prevailing hypotheses about differences in subject matter preparation between these two groups. And we can contrast first-year teachers participating in induction programs with those entering teaching through alternate routes and see how these introductions to teaching influence new teachers.

The Center will also offer the field a more detailed picture of various approaches and alternatives. For a long time, researchers have treated teacher education as a black box and we are only beginning to discover what programs are like (see, for example, Ball and Feiman-Nemser, in press; Cohn, 1979; Feiman-Nemser and Buchmann, 1986; 1987; Goodman, 1982; Howey and Zimpher, 1986). Knowing about the kinds of learning opportunities that programs offer teachers at different points in their careers and about the relationship between these opportunities and changes in teachers' ideas and practices can stimulate teacher educators to think about their own practices.

At the same time, we must point out that the Center will not discover "what works" in teacher education. Nor will our findings translate directly into specific courses of action since empirical evidence alone cannot answer normative questions. Rather our intent is to uncover the reasoning behind

different ways of helping teachers learn to teach and describe their impact on teachers' knowledge, skills, and dispositions. Armed with such information, policymakers and practitioners can clarify their own values and beliefs about what good teaching entails and how it can best be fostered.

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